

**MW & BC Funded Projects**  
**MSU**  
**1976-77**

**TITLE:** Cost of Production

**INSTITUTION:** Montana State University

**DEPARTMENT:** Agricultural Economics

**RESEARCHERS:** LeRoy Luft

**AMOUNT FUNDED:** \$1,000.00

**OBJECTIVES:**

- 1) Continuation of the Montana Wheat Research and Marketing Committee's funded project "Target Price and Cost of Production".

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**TITLE:** Fertilizer and Mineralized N in Small Grains Under Annual Cropping

**INSTITUTION:** Montana State University

**DEPARTMENT:** Plant & Soil Sciences

**RESEARCHERS:** Vernon Mites, Jim Sims

**AMOUNT FUNDED:** \$20,660.00

**OBJECTIVES:**

- 1) Evaluate the amount of N in small grains derived from three sources.
  - a) Current year's N fertilizer applications at several rates.
  - b) Previous year's N fertilizer application.
    - 1) From residual ammonium and nitrate in the soil.
    - 2) From N incorporated into organic matter.
    - 3) From N incorporated into straw.
  - c) Native soil organic matter.

- 2) Compare the amounts of N derived from the three sources in Objective 1 under:
  - a) Alternate fallow cropping.
  - b) Continuous cropping with
    - 1) Conventional tillage.
    - 2) Minimum tillage.
    - 3) Zero tillage.
- 3) Provide a basis for making N recommendations for the cropping systems listed in Objective 2.
- 4) Evaluate the horizontal distance fertilizer nitrogen moves.
- 5) Evaluate the depth to which nitrate leaches.
- 6) Evaluate when fertilizer nitrogen is immobilized and released by decomposing straw.
- 7) Evaluate N incubation soil tests to see if they correlate with N mineralized under field conditions.
- 8) Determine whether fertilizer N is incorporated into any particular amino acids at the expense of the other amino acids.

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**TITLE:** Control of soil-borne diseases of wheat and barley

**INSTITUTION:** Montana State University

**DEPARTMENT:** Plant Pathology

**RESEARCHERS:** D. E. Mathre

**AMOUNT FUNDED:** \$14,947.00

**OBJECTIVES:**

- 1) To develop effective control measures for soil-borne diseases of wheat and barley.

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**TITLE:** Control of rust diseases of wheat

**INSTITUTION:** Montana State University

**DEPARTMENT:** Plant Pathology

**RESEARCHERS:** Gene Sharp, Bob Johnson, Joe Krupensky

**AMOUNT FUNDED:** \$14,747.00

**OBJECTIVES:**

- 1) Identify sources of resistance to stem rust and stripe rust of wheat.
- 2) Selection of wheats having tolerance or long lasting resistance.
- 3) Incorporation of broad based resistance into commercially acceptable wheat types.

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**TITLE:** Winter Wheat Improvement

**INSTITUTION:** Montana State University

**DEPARTMENT:** Plant & Soil Sciences

**RESEARCHERS:** Allan Taylor, G. Hollis Spitler, Duane Falk,  
Duane L. Johnson, Judy M Sever

**AMOUNT FUNDED:** \$23,990.00

**OBJECTIVES:**

- 1) Support research of winter wheat breeding project.
- 2) Shatter resistant 'Cheyenne'.
- 3) Genetic male sterility.
- 4) Protein improvement.

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**TITLE:** To develop cultural methods suitable for the continuous cropping of the drylands of Montana

**INSTITUTION:** Montana State University

**DEPARTMENT:** Research Centers

**RESEARCHERS:** Various

**AMOUNT FUNDED:** \$24,196.00

**OBJECTIVES:**

1) The development of continuous cropping systems to replace the present fallow system is a complex problem. Many unforeseeable conditions arise. Less time is available for seedbed preparation. More land will have to be seeded and harvested annually. Weeds and other pests will probably be more troublesome. The fertility moisture inventory, and plant population relationships will be more critical. The machinery, especially for seeding, will require modification. As seasons vary from year to year, more flexibility in respect to crop selection, methods of tillage, and method of harvest or crop utilization will be required.

In view of the above problems, it becomes nearly impossible for any one Research Center to conduct research on all facets of any changes. Thus, each Center will work on some phase of the problem with the hope that the farmers will be able to put together a system of continuous cropping that will be best suited for his conditions.

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**TITLE:** Resistance and/or tolerance of wheat to leaf and head blotch diseases (controlling wheat leaf spot diseases).

**INSTITUTION:** Montana State University

**DEPARTMENT:** Plant Pathology

**RESEARCHER:** J. F. Brown

**AMOUNT FUNDED:** \$8,800.00

**OBJECTIVES:**

1) Increase the quality and quantity of Montana wheats by holding losses from leaf spots to a minimum.

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**TITLE:** Dwarf Bunt Experimental Nurseries

**INSTITUTION:** Montana State University

**DEPARTMENT:** Research Centers

**RESEARCHERS:** Various

**AMOUNT FUNDED:** \$1,500.00

**OBJECTIVES:**

- 1) To provide evaluation of wheat breeding lines developed by the Montana Agricultural Experiment Station and other Northwest wheat breeding programs for dwarf bunt resistance.
- 2) To evaluate the efficacy of chemical treatments and cultural practices where consistently high levels of dwarf bunt can be expected to occur.